

Remarks

The Office Action mailed August 30, 2004 has been carefully reviewed and the following remarks have been made in consequence thereof.

Claims 1-16 are now pending in this application. Claims 1-3 and 9-11 are rejected. Claims 4-8 and 12-16 are objected to. Claims 1-6, 8-14, and 16 have been amended. No new matter has been added.

The rejection of Claims 1-3 and 9-11 under 35 U.S.C. § 102(b) as being anticipated by Boskamp et al. (U.S. Patent No. 6,249,121) is respectfully traversed.

Boskamp et al. describe a magnetic resonance imaging system including coils (62, 64, 66, and 68) (column 6, line 31, abstract). Structure of each coil (62, 64, 66, 68) is similar (column 6, line 31). The posterior I-channel coil (66) includes primary path conductors (72) in which peak current amplitudes I_1 and I_2 can be varied by means of capacitors to provide a homogeneous, circular, polarized B_1 field (40) (column 6, lines 31-36). The ratio of the currents I_1 and I_2 determines the homogeneity within an imaging volume (12) (column 6, lines 51-52). However, the amplitudes of the currents I_1 and I_2 depend totally on a required B_1 field amplitude (column 6, lines 52-54). The primary path conductors include first and second set of conductor segments (82 and 94) (column 7, lines 1, 2). The first and second primary path conductor segments for each set (82 and 94) are respectively positioned at a specified distance x_1 and x_2 from a central axis (86) (column 7, lines 10-12). The Biot-Savart law uses the values for x_1 and x_2 , in combination with the ratio of currents I_1 and I_2 , to determine the desired B_1 field (column 7, lines 14-17). Accordingly, for each set of primary path conductor segments (82 and 94) in each coil, a distance to the central axis and the current amplitude ratio of the conductors are set to achieve a desired homogeneity of the B_1 field with respect to an iso-center (88) (column 7, lines 17-21).

Claim 1 recites an RF coil apparatus comprising “a plurality of coil elements connected in parallel; and an adjusting device for adjusting, based on a pre-determined field of view, electric current ratios among said plurality of coil elements..”

Boskamp et al. do not describe or suggest an RF coil apparatus as recited in Claim 1. Specifically, Boskamp et al. do not describe or suggest an adjusting device for adjusting, based on a pre-determined field of view, electric current ratios among the plurality of coil elements. Rather, Boskamp et al. describe a magnetic resonance imaging system in which the amplitudes of the currents I_1 and I_2 in a posterior I-channel coil depend totally on a required B_1 field amplitude. The Biot-Savart law uses values for specified distances x_1 and x_2 , in combination with the ratio of currents I_1 and I_2 , to determine the desired B_1 field. Accordingly, Boskamp et al. do not describe or suggest an adjusting device for adjusting, based on a pre-determined field of view, electric current ratios as recited in Claim 1. For the reasons set forth above, Claim 1 is submitted to be patentable over Boskamp et al.

Claims 2 and 3 depend, directly or indirectly, from independent Claim 1. When the recitations of Claims 2 and 3 are considered in combination with the recitations of Claim 1, Applicant submits that Claims 2 and 3 likewise are patentable over Boskamp et al.

Claim 9 recites a magnetic resonance imaging apparatus for collecting magnetic resonance signals while applying a static magnetic field, a gradient magnetic field and an RF magnetic field to a subject to be imaged, and producing an image based on the magnetic resonance signals, the apparatus comprising “an RF coil apparatus for conducting at least one of the application of said RF magnetic field and reception of said magnetic resonance signals, said RF coil apparatus comprising: a plurality of coil elements connected in parallel; and an adjusting device for adjusting, based on a pre-determined field of view, electric current ratios among said plurality of coil elements.”

Boskamp et al. do not describe or suggest a magnetic resonance imaging apparatus as recited in Claim 9. Specifically, Boskamp et al. do not describe or suggest an adjusting device for adjusting, based on a pre-determined field of view, electric current ratios among the plurality of coil elements. Rather, Boskamp et al. describe a magnetic resonance imaging system in which the amplitudes of the currents I_1 and I_2 in a posterior I-channel coil depend totally on a required B_1 field amplitude. The Biot-Savart law uses values for specified distances x_1 and x_2 , in combination with the ratio of currents I_1 and I_2 , to determine the desired B_1 field. Accordingly,

Boskamp et al. do not describe or suggest an adjusting device for adjusting, based on a pre-determined field of view, electric current ratios as recited in Claim 9. For the reasons set forth above, Claim 9 is submitted to be patentable over Boskamp et al.

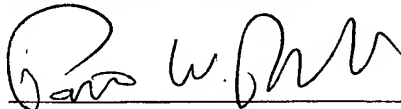
Claims 10 and 11 depend, directly or indirectly, from independent Claim 9. When the recitations of Claims 10 and 11 are considered in combination with the recitations of Claim 9, Applicant submits that Claims 10 and 11 likewise are patentable over Boskamp et al.

For at least the reasons set forth above, Applicant respectfully requests that the Section 102 rejection of 1-3 and 9-11 be withdrawn.

Claims 4-8 and 12-16 have been indicated to contain allowable subject matter if rewritten in independent form including all of the limitations of the base claims and any intervening claims. Claims 4-6, and 8, have been amended to include of the limitations of independent Claim 1. Claim 7 depends on Claim 6. Claims 12-14, and 16 have been amended to include of the limitations of independent Claim 9. Claim 15 depends on Claim 14. Accordingly, Applicant respectfully submits that Claims 4-8 and 12-16 are in condition for allowance.

In view of the foregoing amendment and remarks, all the claims now active in this application are believed to be in condition for allowance. Reconsideration and favorable action is respectfully solicited.

Respectfully Submitted,



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